

## CLAIMS

1. A hierarchical dictionary creating apparatus comprising:

5 an operation file editing unit that edits a logic operation file by adding a new class using an inter-class logic operation, the logic operation file in which the inter-class logic operation is described, the inter-class logic operation being employed in a hierarchical dictionary  
10 having inheritance of a property from an upper class to a lower class;

an operation file storing unit that stores the logic operation file edited by the operation file editing unit;

15 an operation file determining unit that determines a property to be introduced from an existing class to the new class in the logic operation file stored in the operation file storing unit;

20 a dictionary file outputting unit that outputs the property to be introduced from the existing class to the new class into a hierarchical dictionary file, the property being determined by the operation file determining unit;  
and

25 a dictionary file storing unit that stores the hierarchical dictionary file.

2. The hierarchical dictionary creating apparatus according to claim 1, further comprising

a dictionary file inputting unit that reads in the hierarchical dictionary file,

30 wherein the dictionary file outputting unit combines the hierarchical dictionary file read by the dictionary file inputting unit with the property to be introduced from the existing class to the new class, the property being

determined as the result of evaluation by the operation file determining unit, and outputs the combined data as the hierarchical dictionary file.

5 3. The hierarchical dictionary creating apparatus according to claim 1, wherein

property import defined through the inter-class logic operation involves outputting the hierarchical dictionary file converted into an importing format of each property  
10 using "Case of" defined by ISO13584 standard.

4. The hierarchical dictionary creating apparatus according to claim 1, wherein

the dictionary file outputting unit further includes an editing unit that allows editing of the hierarchical dictionary data model based on the property to be introduced from the existing class to the new class on a screen, the property being the result of evaluation by the operation file determining unit.

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5. The hierarchical dictionary creating apparatus according to claim 1, further comprising

an intermediate class generating unit that generates an intermediate class containing all or a part of the properties of one or more existing classes, the intermediate class being independent of existing classes,

wherein the operation file determining unit determines a property to be introduced from the intermediate class to a new class.

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6. The hierarchical dictionary creating apparatus according to claim 1, wherein the dictionary file outputting unit notifies when an operand of the inter-class

logic operation contains properties having an identical identifier.

7. The hierarchical dictionary creating apparatus  
5 according to claim 1, wherein  
the dictionary file outputting unit defines a derivative property equivalent to a higher concept of a conjugate property when an operand of the inter-class logic operation contains properties having an identical  
10 identifier, and associates the derivative property with the conjugate property by treating the conjugate property as a lower property and a specialization of the derivative property.

15 8. The hierarchical dictionary creating apparatus according to claim 1, wherein  
when an operand of the inter-class logic operation contains properties having an identical identifier and has a constraint conditions, the dictionary file outputting  
20 unit defines a derivative property to which a derivative identifier is allocated, the derivative identifier being an identifier which is different from the identical identifier of the properties and which does not exist in other location in the hierarchical structure.

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9. The hierarchical dictionary creating apparatus according to claim 1, wherein  
the dictionary file outputting unit sets a new class as a lower class of one class among classes to which a  
30 content table belongs, when the logic operation is performed on the contents tables and properties duplication as a result of the logical operation, the contents tables being formed with data rows having property values with

respect to a property that can be used in each class, and, for the duplicating properties, the dictionary file outputting unit defines a property that appears in a content table of a class other than a parent class as a 5 derivative property in the new class.

10. The hierarchical dictionary creating apparatus according to claim 1, wherein

the dictionary file outputting unit sets a new class 10 at a different location from classes to which the logic operation is performed, when the logic operation is performed on the contents tables and properties duplication as a result of the logical operation, the content table being formed with data rows having property values with 15 respect to a property that can be used in each class, and the dictionary file outputting unit defines the duplicating properties as derivative properties by providing a new derivative identifier to the duplicating properties.

20 11. A computer program product having a computer readable medium including programmed instructions for dictionary creation, wherein the instructions, when executed by a computer, cause the computer to perform:

editing a logic operation file by adding a new class 25 using an inter-class logic operation, the logic operation file in which the inter-class logic operation is described, the inter-class logic operation being employed in a hierarchical dictionary having inheritance of a property from an upper class to a lower class;

30 storing the edited logic operation file;

determining a property to be introduced from an existing class to the new class in the logic operation file;

converting the property to be introduced from the existing class to the new class into a hierarchical dictionary file, the property being determined; and storing the hierarchical dictionary file.

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12. A method of creating a hierarchical dictionary comprising:

editing a logic operation file by adding a new class using an inter-class logic operation, the logic operation file in which the inter-class logic operation is described, the inter-class logic operation being employed in a hierarchical dictionary having inheritance of a property from an upper class to a lower class;

15       storing the edited logic operation file; determining a property to be introduced from an existing class to the new class in the logic operation file;

20       converting the property to be introduced from the existing class to the new class into a hierarchical dictionary file, the property being determined; and storing the hierarchical dictionary file.